# Temperature TMDL Technical Process

- Define the numerical targets for the TMDL.
- Characterize existing conditions.
- Identify sources and evaluate linkages between sources and temperature response of the river.
- Quantify loading capacity.
- Allocate loads.

# Defining the Numerical Targets

- The WQS establish the numerical targets for the TMDL.
- The WQS for most of the river prohibit or restrict temperature increases due to human activities.
- So we have to estimate temperature in the absence of human activity that affects temperature (natural or site potential).

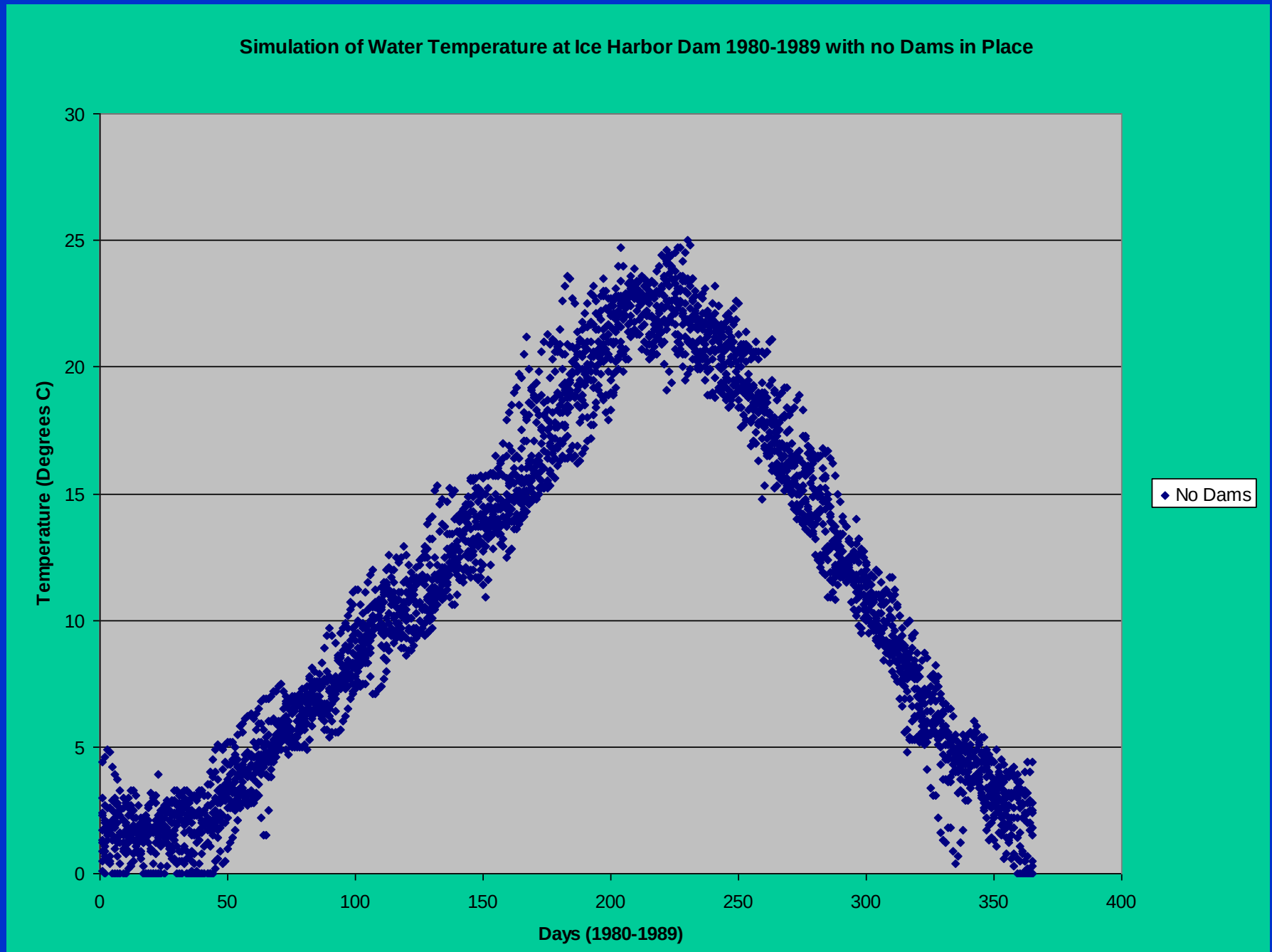
# Defining Numerical Targets

- Use RBM 10 Water Quality Model to simulate the average temperature of cross sections of the river.
- Simulate 30 years of water temperature using existing meteorological and hydrological data.
- Compare simulations of natural conditions to existing conditions.

# Defining Numerical Targets

- When natural conditions exceed the criteria in the WQS, the natural or site potential temperatures will be used to establish the numerical targets for the TMDL.

- This will be done for each source of heat or cause of temperature increase along the river (point sources, dams, etc.)


Simulation of Water Temperature at Ice Harbor Dam 1980-1989 with no Dams in Place
Temperature (Degrees C)
30
25
20
15
10
5
0
0
50
100
150
200
250
300
350
400
Days (1980-1989)
No Dams

# Characterization of Existing Conditions

- Use the RBM-10 Model to simulate existing conditions.
  - Compare apples to apples
  - Fill in data gaps

# Identify and Evaluate Heat Sources or other Causes of Increased Temperature

- Point Sources
- Dams
- Tributaries
- Irrigation Return Flows

- Run RBM10 for Each Source

# Quantify Loading Capacity

- Use the loads from the RBM10 simulations of natural or site potential conditions.

# Allocate Loads

- Use RBM10 for “far field” Waste Load Allocations
- Further adjust loads if necessary to achieve WQS at the edge of the mixing zone.